

ADDITIONAL



PIONEER
The future of sound and vision.

Service Manual

ORDER NO.
ARP1535

MULTI - PLAY COMPACT DISC PLAYER

PD-M500

HEM, HB, SD, SD / G, HP

PD-M400

HEM, SD, HP

- Refer to the service manual ARP1520, PD-M500/KU, KC, PD-M400/KU and KC types.

- This manual is applicable to the PD-M500/HEM, HB, SD, SD/G, HP, PD-M400/HEM, SD and HP types.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

IFA © APR.1988 Printed in Japan

1. PD-M500/HEM, HB, SD, SD/G AND HP TYPES

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The △ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.

★★ GENERALLY MOVES FASTER THAN ★

This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω → 56 × 10¹ → 561 RD1/4PS 561 J

47k Ω → 47 × 10³ → 473 RD1/4PS 473 J

0.5 Ω → 0R5 RN2H 0R5 K

1 Ω → 010 RS1P 010 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 RN1/4SR 5621 F

1.1 CONTRAST OF MISCELLANEOUS PARTS

The PD-M500/HEM, HB, SD, SD/G and HP types are the same as the PD-M500/KU type with the exception of the following sections.

Mark	Symbol & Description	Part No.						Remarks
		KU type	HEM type	HB type	SD type	SD/G type	HP type	
△ ◎	Main board assembly	PWZ1393	PWZ1396	PWZ1396	PWZ1396	PWZ1396	PWZ1396	For packing
△ ★	Headphone board assembly	.....	Non supply	Non supply	Non supply	Non supply	Non supply
△ ★	Power transformer (AC120V)	PTT1058	.....	.....	.....	.....	.....
△ ★	Power transformer (AC220/240V)	.....	PTT1059	PTT1059	.....	.....	PTT1059
△ ★	Power transformer (AC110/120 - 127/220/240V)	.....	.....	.....	PTT1060	PTT1060	.....
△	Strain relief	CM-22C	CM-22B	CM-22B	CM-22B	CM-22B	CM-22B	
	Phono name plate	PAM1203	PAM1188	PAM1188	PAM1188	PAM1188	PAM1188	
	FL filter	PAM1234	PAM1235	PAM1235	PAM1234	PAM1234	PAM1235	
△	AC power cord	PDG1002 (PDG1015)	PDG1003	PDG1004	PDG1013	PDG1013	PDG1006	
	CD packing case	PHG1177	PHG1187	PHG1187	PHG1187	PHG1231	PHG1187	
	Front panel	PNW1383	PNW1361	PNW1361	PNW1361	PNW1361	PNW1361	
	Headphone knob	.....	PAC1208	PAC1208	PAC1208	PAC1208	PAC1208
	Headphone angle	.....	Non supply	Non supply	Non supply	Non supply	Non supply
	Operating instructions (English)	PRB1047	.....	PRB1047	PRB1047	PRB1047	PRB1047
	Operating instructions (English/French)	.....	PRE1067	.....	.....	.....	.....
	Operating instructions (Spanish)	.....	.....	.....	PRC1005	.....	.....
	Operating instructions (German/Italian/Dutch/Spanish/Swedish/Portuguese)	.....	PRF1008	.....	.....	.....	.....
△	Single magazine assembly	PXA1043	.....	.....	.....	.....	.....
△ ★ ★	Lead wire unit	PDF1035	PDF1035	PDF1035	PDF1042	PDF1042	PDF1035	
△ ★ ★	S102 Voltage selector (AC110/120 - 127/220/240V)	.....	.....	.....	PSB1002	PSB1002	.....

MAIN Board Assembly (PWZ1396)

The main board assembly (PWZ1396) is the same as the main board assembly (PWZ1393) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		PWZ1393	PWZ1396	
△★★	IC30 - IC32 R89,R90 R91,R92 R105,R106	. . . . . . . . . . . . . . . RD1/6PM102J	ICP - N10 RD1/6PM511J RD1/6PM223J RD1/6PM511J	

Headphone Board Assembly

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
★★	IC501	M5218L

CAPACITORS

Mark	Symbol & Description	Part No.
	C501,C502	CEAS330M16
	C503 - C505	CKCYF103Z50
	C506,C507	CQMA104K50

RESISTORS

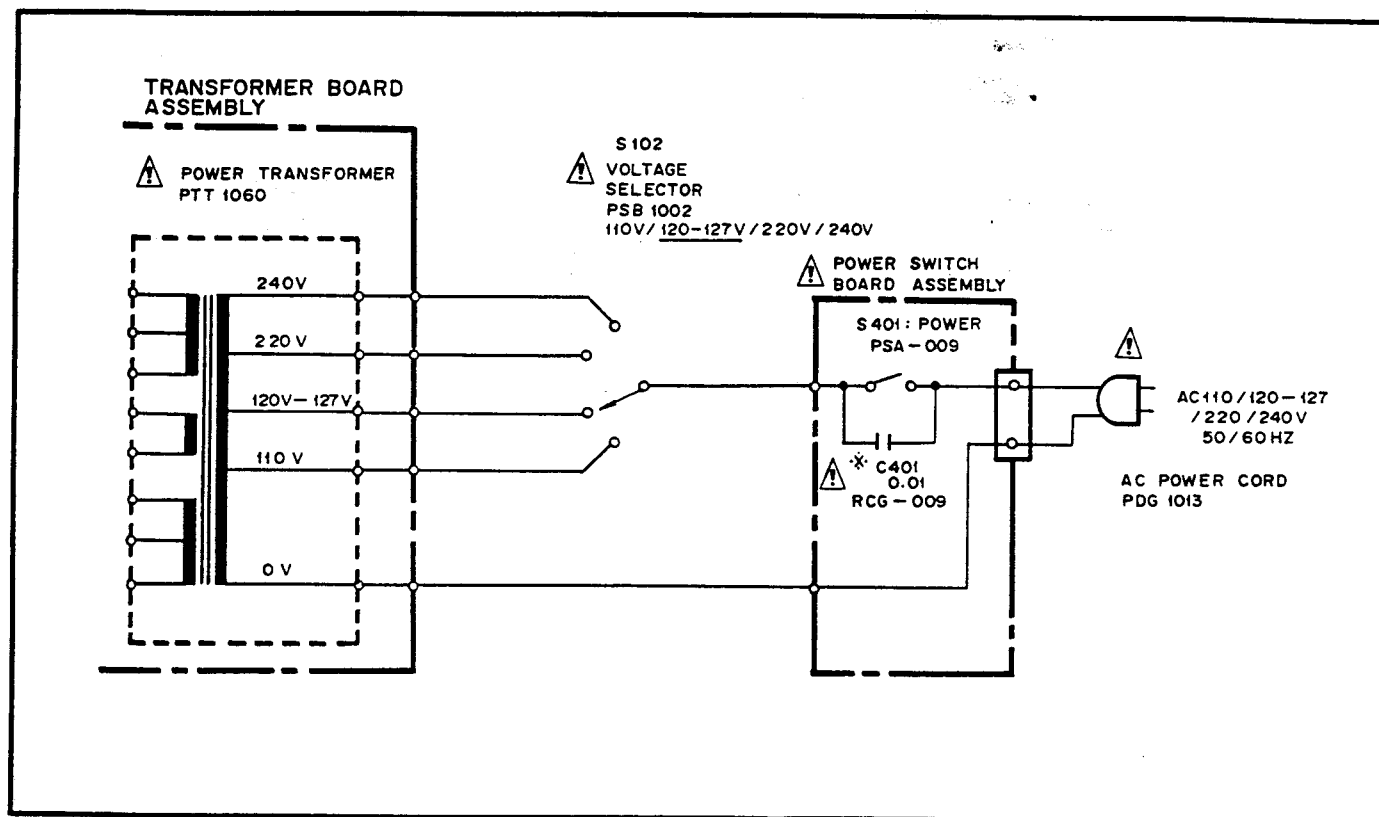
Mark	Symbol & Description	Part No.
	VR501 Variable resistor (20k Ω) (LEVEL)	PCS1001
	Other resistors	RD1/6PM□□□J

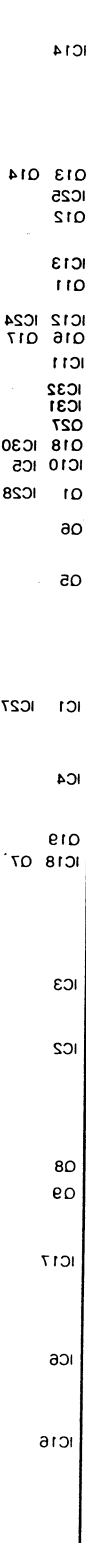
OTHERS

Mark	Symbol & Description	Part No.
	JA501 Jack (PHONES)	PKN1001

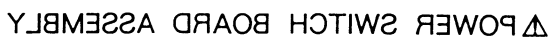
1.2 FOR PD-M500/SD and SD/G types

Note :The schematic diagram of PD-M500/SD and SD/G types are the same as the PD-M500/HEM, HB and HP types with the exception of the power supply section. Refer to the schematic diagram of PD-M500/HEM, HB and HP types.(see page 11.)





OIGUA
TUO



A

B

O

D

7

↑

2

3

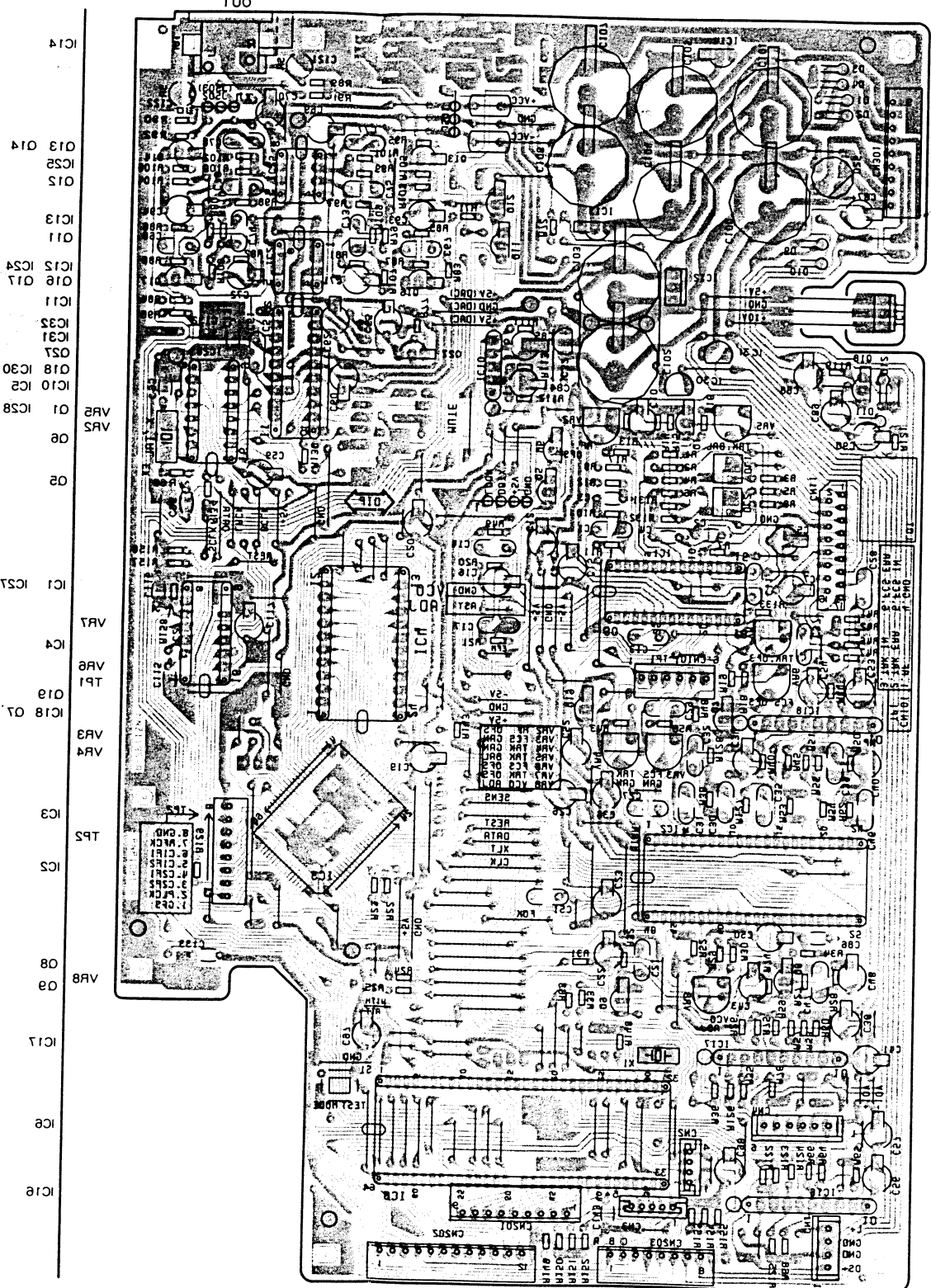
4

12

৯

6

OIDUA
TUO



HEADPHONES



1.3 P.C. BOARDS PATTERN

A

B

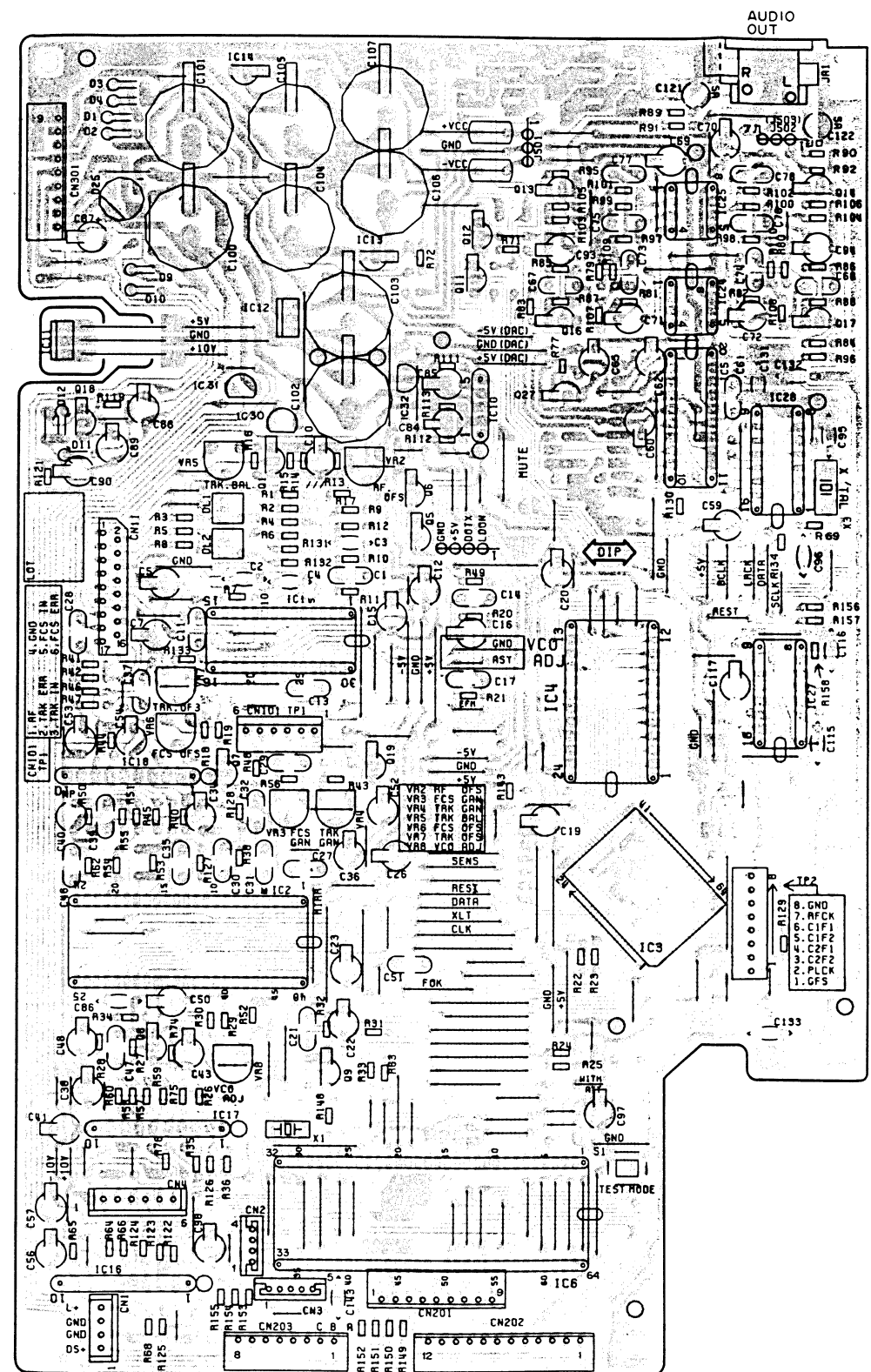
C

D

P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
					Mylar capacitor
		FET			Styrol capacitor
		Diode			Electrolytic capacitor (Non polarized)
					Electrolytic capacitor (Noiseless)
		LED			Electrolytic capacitor (Polarized)
		Varactor			Power capacitor
		Tact switch			Semi-fixed resistor
		Inductor			Resistor array
					Resistor
		Transformer			Resonator
		Filter			

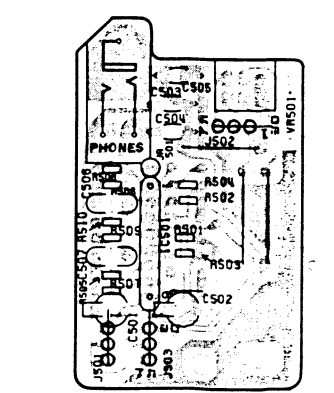
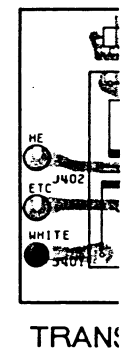
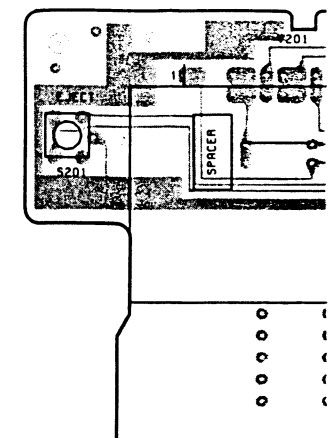
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with shows negative terminal.
4. The diode marked with shows cathode side.
5. The transistor terminal marked with shows emitter.

MAIN BOARD ASSEMBLY (PWZ1396)



- IC14
- Q13 Q14
- IC25
- Q12
- IC13
- Q11
- IC12 IC24
- Q16 Q17
- IC11
- IC32
- IC31
- Q27
- Q18 IC30
- IC10 IC5
- VR5
- VR2
- Q1 IC28
- Q6
- Q5
- IC1 IC27
- VR7
- IC4
- VR6
- TP1
- Q19
- IC18 Q7
- VR3
- VR4
- TP2
- IC3
- IC2
- VR8
- Q8
- Q9
- IC17
- IC6
- IC16

FUNCTION BOARD



HEADPHONE BOARD

4

5

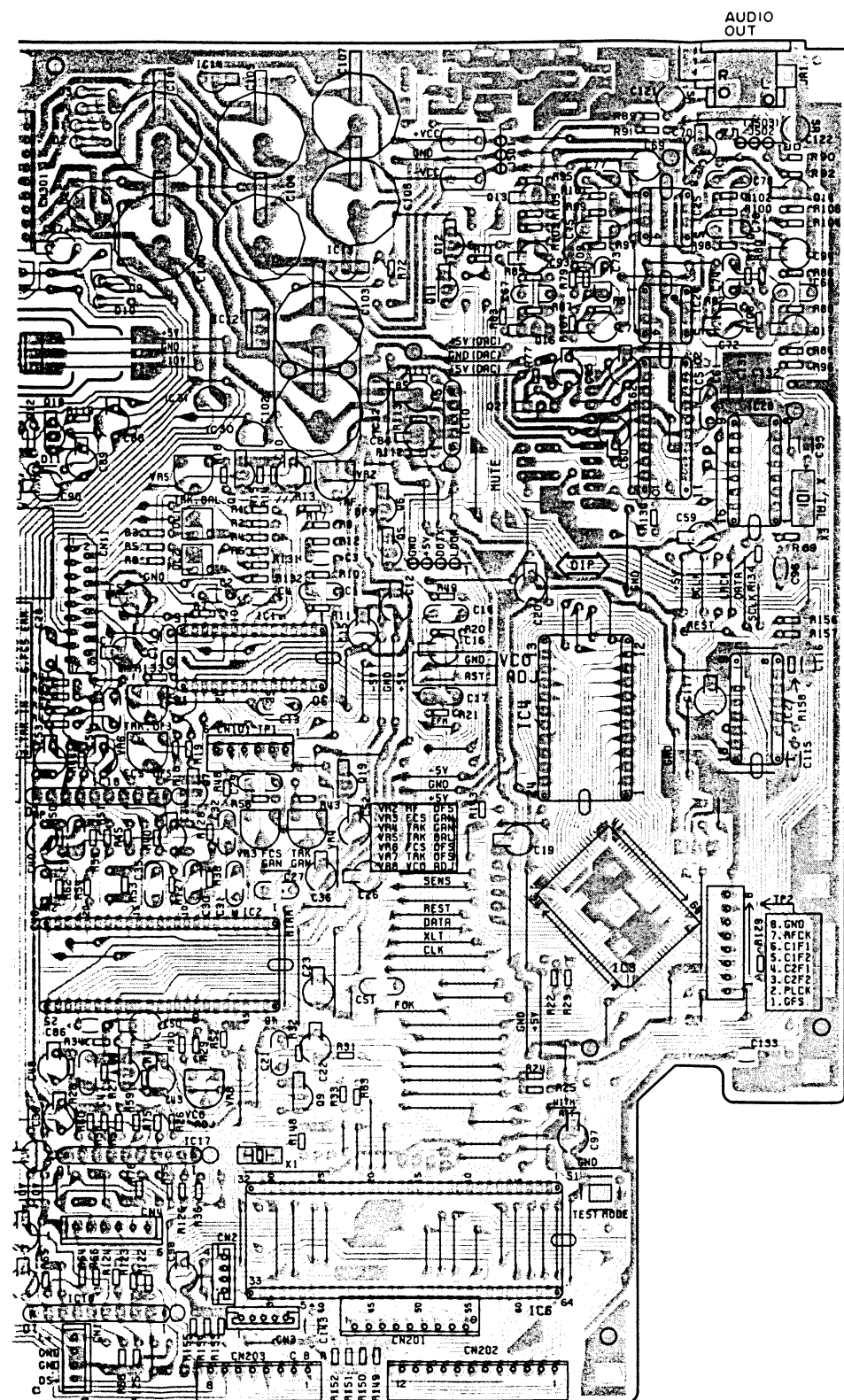
6

7

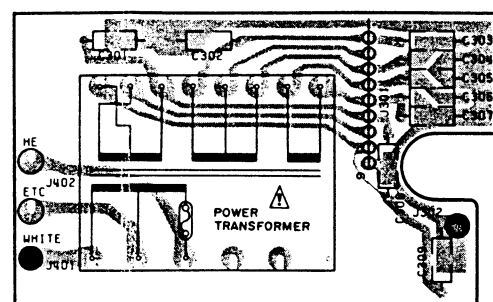
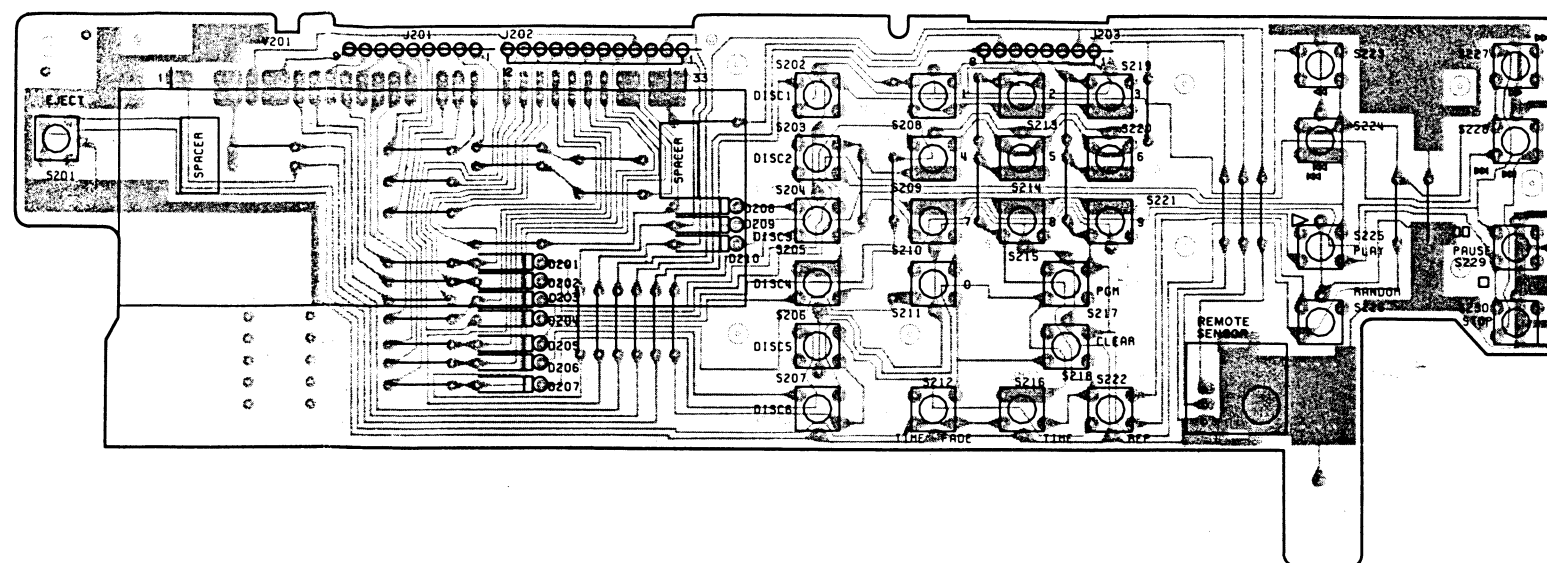
8

9

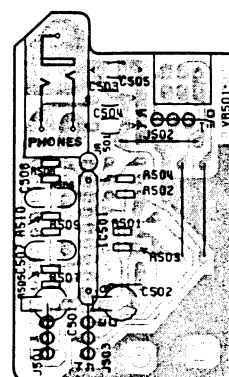
BOARD ASSEMBLY (PWZ1396)



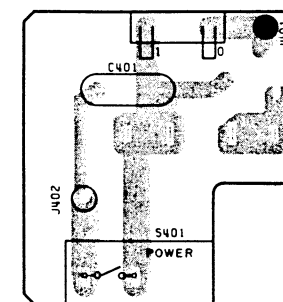
FUNCTION BOARD ASSEMBLY (PWZ1402)



TRANSFORMER BOARD ASSEMBLY



HEADPHONE BOARD ASSEMBLY



△ POWER SWITCH BOARD ASSEMBLY

A

B

C

D

4

5

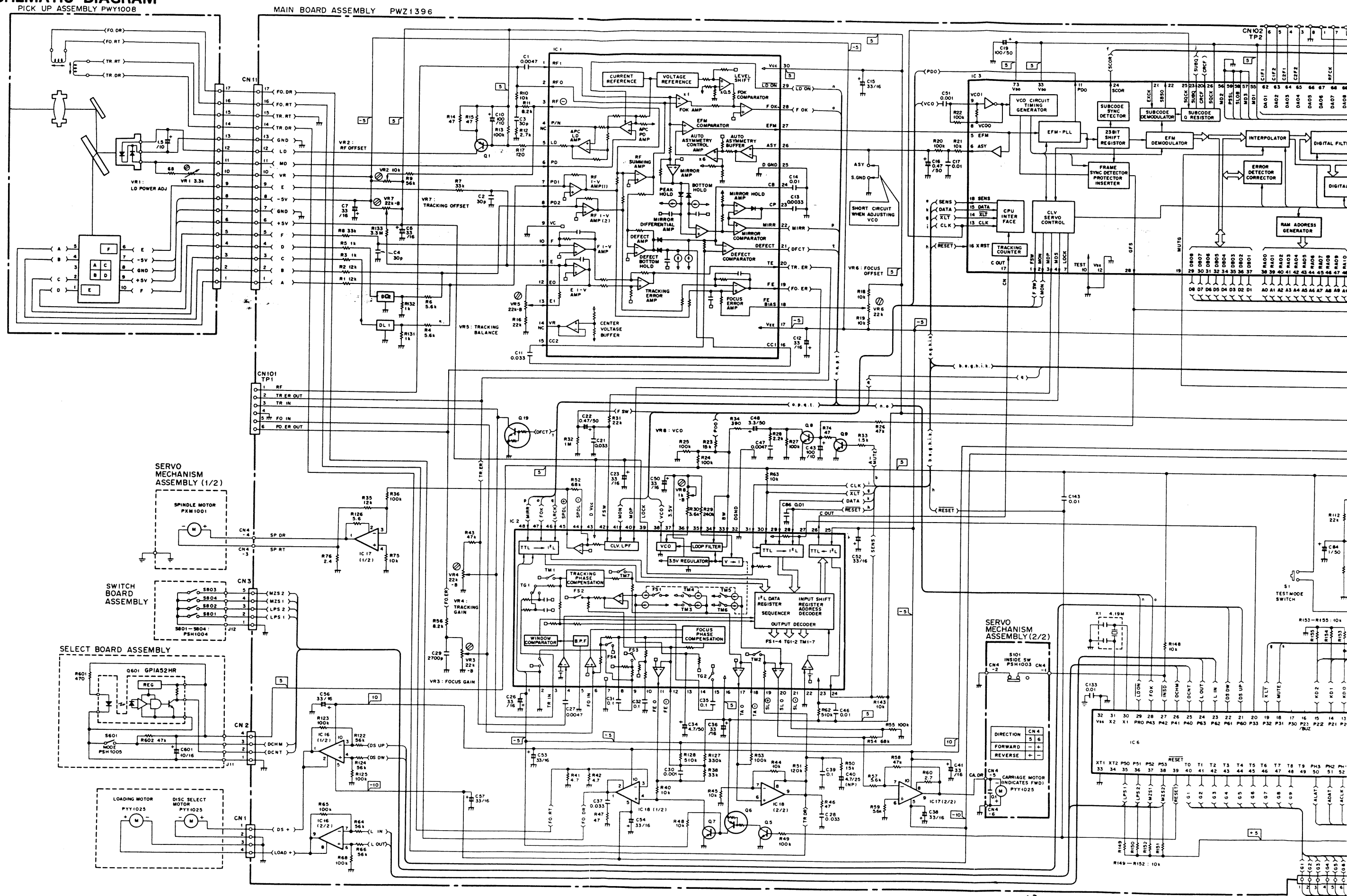
6

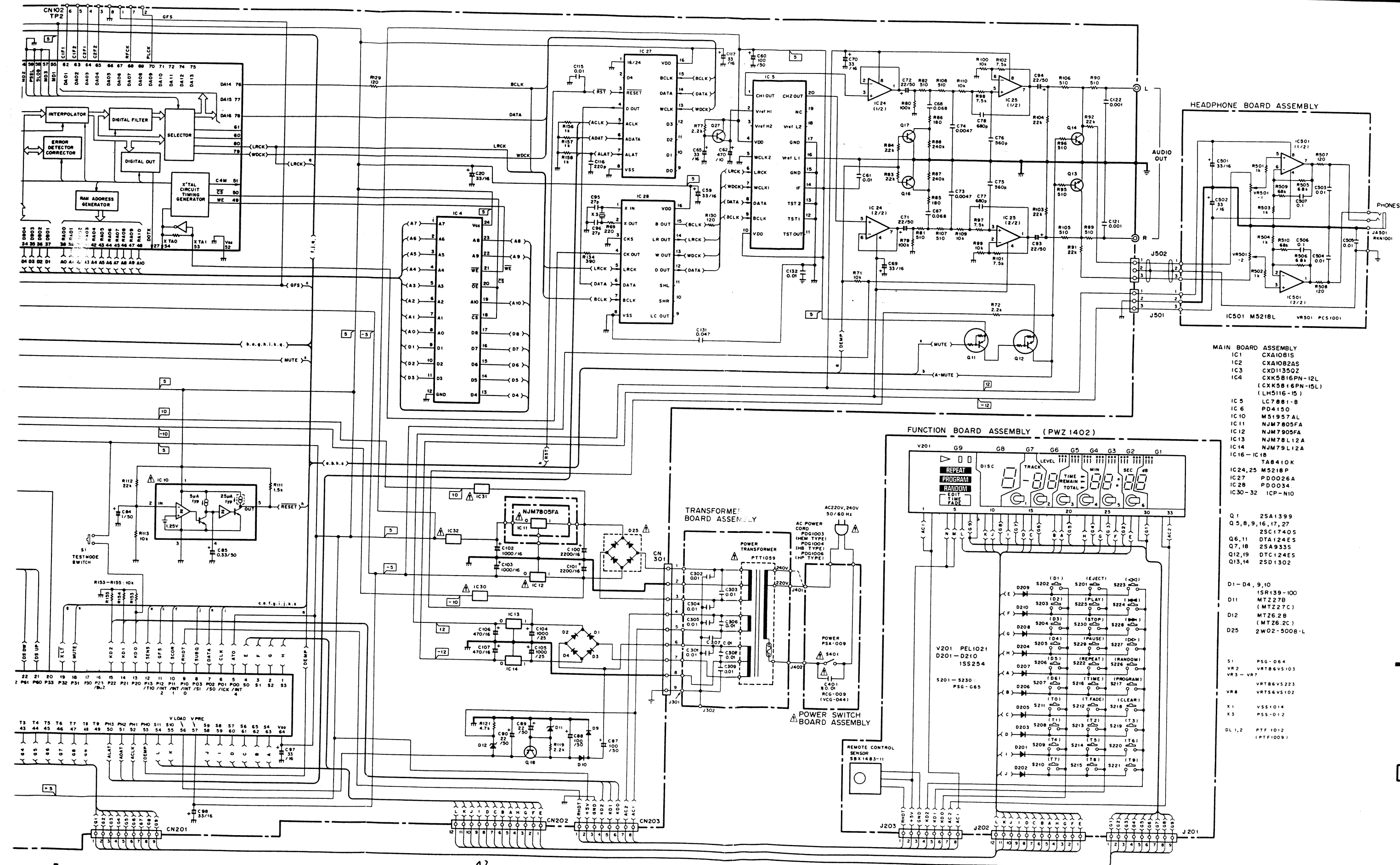
7

8

9

1.4 SCHEMATIC DIAGRAM





MAIN BOARD ASSEMBLY

IC1 CXA10B1S

IC2 CXA0182AS

IC3 CXD1035Z

IC4 CXK5816PN-12L
(CXK58 16PN-15L)
(LM5116-15)

IC 5 LC7881-B

IC 6 PD410

IC10 M51957 AL

IC11 NJM7805FA

IC12 NJM7905FA

IC13 NJM78L12A

IC14 NJM79L12A

IC16-IC18

TA8410K

IC24,25 M5218P

IC27 PD0026A

IC28 PD0034

IC30-32 ICP-N10

Q 1 25A1399
Q 5,8,9,16,17,27 25C17405
Q 6,11 DTA124E5
Q 7,18 25A933S
Q 12,19 DTC124E5
Q 13,14 25D1302

D1-D4,9,10 1SR139-100
D11 MT227B
(MTZ27C)
D12 MTZ6.2B
(MTZ6.2C)
D25 2W02-3008-L

S1 PSG-064
VR2 VRTB6VS103
VR3 - VR7
VRTB6VS223
VR8 VRTS6VS102
X1 VSS1014
X3 PSS-012
DL 1,2 PTF 1012
(PTF1009)


1. RESISTORS :

Indicated in Ω , 1/4W, 1/6W and 1/8W, $\pm 5\%$ tolerance unless otherwise noted k ; k Ω , M ; M Ω , (F) ; $\pm 1\%$, (G) ; $\pm 2\%$, (K) ; $\pm 10\%$, (M) ; $\pm 20\%$ tolerance.

2. CAPACITORS :

Indicated in capacity (μ F) /voltage (V) unless otherwise noted p ; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT :

 : DC voltage (V) at no input signal.

4. OTHERS :

→ ; Signal route.

⊗ ; Adjusting point.

The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

* marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. SWITCHES : (The underlined indicates the switch position)

OUTSIDE OF P.C.BOARD ASSEMBLY

S101 : INSIDE ON - OFF

MAIN BOARD ASSEMBLY

S1 : TEST MODE ON - OFF

FUNCTION BOARD ASSEMBLY

S201 : EJECT

S202 : 1

S203 : 2

S204 : 3 (DISC NO.)

S205 : 4

S206 : 5

S207 : 6

S208 : 1

S209 : 4 (TRACK NO.)

S210 : 7

S211 : 0

S212 : TIME FADE

S213 : 2

S214 : 5 (TRACK NO.)

S215 : 8

S216 : TIME

S217 : PGM MEMORY

S218 : CLEAR

S219 : 3

S220 : 6 (TRACK NO.)

S221 : 9

S222 : REPEAT

S223 : MANUAL SEARCH (◀◀)

S224 : TRACK SEARCH (◀◀)

S225 : PLAY

S226 : RANDOM PLAY

S227 : MANUAL SEARCH (▶▶)

S228 : TRACK SEARCH (▶▶)

S229 : PAUSE

S230 : STOP

SWITCH BOARD ASSEMBLY

S801 : LPS1 LOADING POSITION

S802 : LPS2

	STOP	DURING THE LOADING	CLAMP CONDITION PLAY	DURING THE EJECT
S801	ON (H)	OFF (L)	OFF (L)	ON (H)
S802	ON (H)	ON (H)	OFF (L)	OFF (L)

S803 : MZS2 MAGAZINE

S804 : MZS1

	NO MAGAZINE	SIX MAGAZINES	SINGLE
S803	ON (H)	OFF (L)	OFF (L)
S804	OFF (L)	ON (H)	OFF (L)

Line Voltage Selection

(For HEM, HB and HP types)

Line voltage can be changed with following steps.

1. Disconnect the AC Power cord.
2. Remove the Bonnet case.
3. Change the connection of the primary lead wires.
(Connect as shown in Schematic Diagram)
4. Stick the line voltage label on the rear panel.

Description	Part No.
220V label	AAX-193
240V label	AAX-192

2. FOR PD-M400/HEM, SD AND HP TYPES

NOTES :

- Parts without part number cannot be supplied.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.

★★ GENERALLY MOVES FASTER THAN ★

This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560 Ω → 56 × 10¹ → 561 RD1/4PS 5 6 1 J

47k Ω → 47 × 10³ → 473 RD1/4PS 4 7 3 J

0.5 Ω → 0R5 RN2H 0 R 5 K

1 Ω → 010 RS1P 0 1 0 K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 RN1/4SR 5 6 2 1 F

2.1 Contrast of Miscellaneous Parts

The PD-M400/HEM, SD and HP types are the same as the PD-M500/KU type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		PD-M500 /KU type	PD-M400 /HEM type	PD-M400 /SD type	PD-M400 /HP type	
Δ ◎	Main board assembly	PWZ1393	PWZ1398	PWZ1397	PWZ1397	For packing
◎	Function board assembly	PWZ1402	PWZ1408	PWZ1408	PWZ1408	
Δ ★	Transformer board assembly	Non supply	Non supply	Non supply	Non supply	
Δ ★	Power transformer (AC120V)	PTT1058	.....	.....	.....
Δ ★	(AC220/240V)	.....	PTT1069	.....	PTT1069
Δ ★	(AC110/120 - 127/220/240V)	.....	.....	PTT1070	.....
Δ	Strain relief	CM-22C	CM-22B	CM-22B	CM-22B	
	Track button	PAC1261	.....	.....	.....
	Program button	.....	PAC1263	PAC1263	PAC1263
	Window	PAM1182	PAM1202	PAM1183	PAM1183	
	FL filter	PAM1234	PAM1237	PAM1236	PAM1236	
Δ	AC power cord	PDG1002	PDG1008	RDG1003	PDG1011	
	CD packing case	PHG1177	PHG1189	PHG1189	PHG1189	
	Operating instructions (English)	PRB1047	.....	PRB1048	PRB1048
	Operating instructions (English/French)	.....	PRE1068	.....	.....
	Operating instructions (Spanish)	PRC1005	For power switch
	Operating instructions (German/Italian/Dutch/Spanish/Swedish/Portuguese)	.....	PRF1009	.....	.....
	Phono name plate	PAM1203	PAM1189	PAM1189	PAM1189	
	Connection cord with miniplug	.....	PDE-319	PDE-319	PDE-319
	Stopper	PNM1018	.....	.....	.....
	Leg (A)	PNW1326	.....	.....	.....
	Front panel	PNW1383	PNW1362	PNW1362	PNW1362	
	Remote control unit	PWW1021	.....	.....	.....
	Single magazine assembly	PXA1043	.....	.....	.....
	Leg	.....	REC-434	REC-434	REC-434
	Screw	PMZ30P060FCU	PMZ30P060FMC	PMZ30P060FMC	PMZ30P060FMC	
	Lead wire unit	PDF1035	PDF1035	PDF1042	PDF1035	
Δ★★	S102 Voltage selector (AC110/120 - 127/220/240V)	.....	.....	PSB1002	.....

MAIN Board Assembly (PWZ1397 and PWZ1398)

The main board assembly (PWZ1397) and (PWZ1398) are the same as the main board assembly (PWZ1393) with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		PWZ1393	PWZ1397	PWZ1398	
★★	IC5	LC7881-B	LC7881-C	LC7881-C	
★★	IC13	NJM78L12A	.....	.....
★★	IC14	NJM79L12A	.....	.....
★★	IC27	PD0026A	.....	.....
★★	IC28	PD0034	.....	PD0034	
Δ★★	IC30 - IC32	.....	.....	ICP-N10	
Δ★★	IC11	NJM7805FA	NJM78M05FA	NJM78M05FA	
Δ★★	IC12	NJM7905FA	NJM79M05FA	NJM79M05FA	
★★	IC24,IC25	M5218P	NJM4558DX	NJM4558DX	
★★	Q27	2SC1740S	.....	.....
★★	Q18	2SA933S	.....	.....
★	D1 - D4,D9	1SR139-100	.....	.....
★	D11	MTZ27B	.....	.....
		(MTZ27C)			
★	D12	MTZ6.2B	.....	.....
		(MTZ6.2C)			
★	D17 - D19	.....	1SS254	1SS254	
★	D25	2W02-5008-L	WL02-5004-L	WL02-5004-L	
	C59	CEAS330M16	.....	CEAS330M16	
	C61	CFTXA103J50	CKCYF103Z50	CKCYF103Z50	
	C62	CEAS471M10	CEAS101M10	CEAS471M10	
	C81,C82	.....	CCCCH300J50	.....
	C19,C60	CEAS101M50	CEAS330M16	CEAS330M16	
	C65	CEAS330M16	.....	.....
	C87	CEAS101M50	.....	.....
	C89,C90	CEAS220M50	.....	.....
	C91,C141	.....	CKCYF103Z50	CKCYF103Z50	
	C92	.....	CCCSL101J50	CCCSL101J50	
	C95,C96	CCCCH270J50	.....	CCCCH270J50	
	C104,C105	CEAS102M25	.....	.....
	C106,C107	CEAS471M16	.....	.....
	C115,C162	CKCYF103Z50	.....	.....
	C116	CCCSL221J50	.....	.....
	C118	.....	CEAS220M50	CEAS220M50	
	C75,C76	CQMA561J50	CQMA471J50	CQMA471J50	
	C77,C78	CQMA681J50	CQMA821J50	CQMA821J50	
	C117	CEAS330M16	.....	.....
	C121,C122	CQSA102J50	CQMA102K50	CQMA102K50	
	C131	CKCYF473Z50	CKCYF103Z50	CKCYF103Z50	
	C102,C103	CEAS102M16	CEAS471M10	CEAS471M10	
	R3,R5,R131,R132,R156 - R158	RD1/6PM102J	.....	.....
	R69	RD1/6PM221J	.....	RD1/6PM221J	
	R4,R6	RD1/6PM562J	RD1/6PM123J	RD1/6PM123J	
	R72	RD1/6PM222J	RD1/6PM152J	RD1/6PM152J	
	R78	.....	RD1/6PM471J	RD1/6PM271J	
	R77	RD1/6PM222J	.....	.....
	R117	.....	RD1/6PM224J	RD1/6PM224J	
	R118	.....	RD1/6PM102J	RD1/6PM102J	
	R119	RD1/6PM222J	.....	.....
	R121	RD1/6PM472J	RD1/6PM362J	RD1/6PM362J	
	R97,R98	RD1/6PM752J	RD1/6PM822J	RD1/6PM822J	
	R101,R102	RD1/6PM752J	RD1/6PM472J	RD1/6PM472J	
	R109,R110	RD1/6PM103J	RD1/6PM822J	RD1/6PM822J	
	R130	RD1/6PM121J	.....	RD1/6PM121J	
	R134	RD1/6PM391J	.....	RD1/6PM391J	
	R159	.....	RD1/6PM362J	RD1/6PM362J	
★★	R161	.....	RD1/6PM391J	RD1/6PM391J	
★	DL1,DL2 Delay line	PTF1012	.....	.....
★	X2	.....	PSS-012	.....
★	X3	PSS-012	.....	PSS-012	
	JA3,JA4 Mini jack (CONTROL IN/OUT)	.....	RKN1004	RKN1004	

Function Board Assembly (PWZ1408)

The function board assembly (PWZ1408) is the same as the function board assembly (PWZ1402) with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		PWZ1402	PWZ1408	
★	D201 - D203	1SS254	• • • • •	
★★	S208 - S215, S219 - S221 Tact switch (TRACK No.0-9, TIME FADE, REPEAT)	PSG-065	• • • • •	
★	V201 Fluorescent indicator tube Remote control sensor	PEL1021 SBX1483-11	PEL1022 • • • • •	

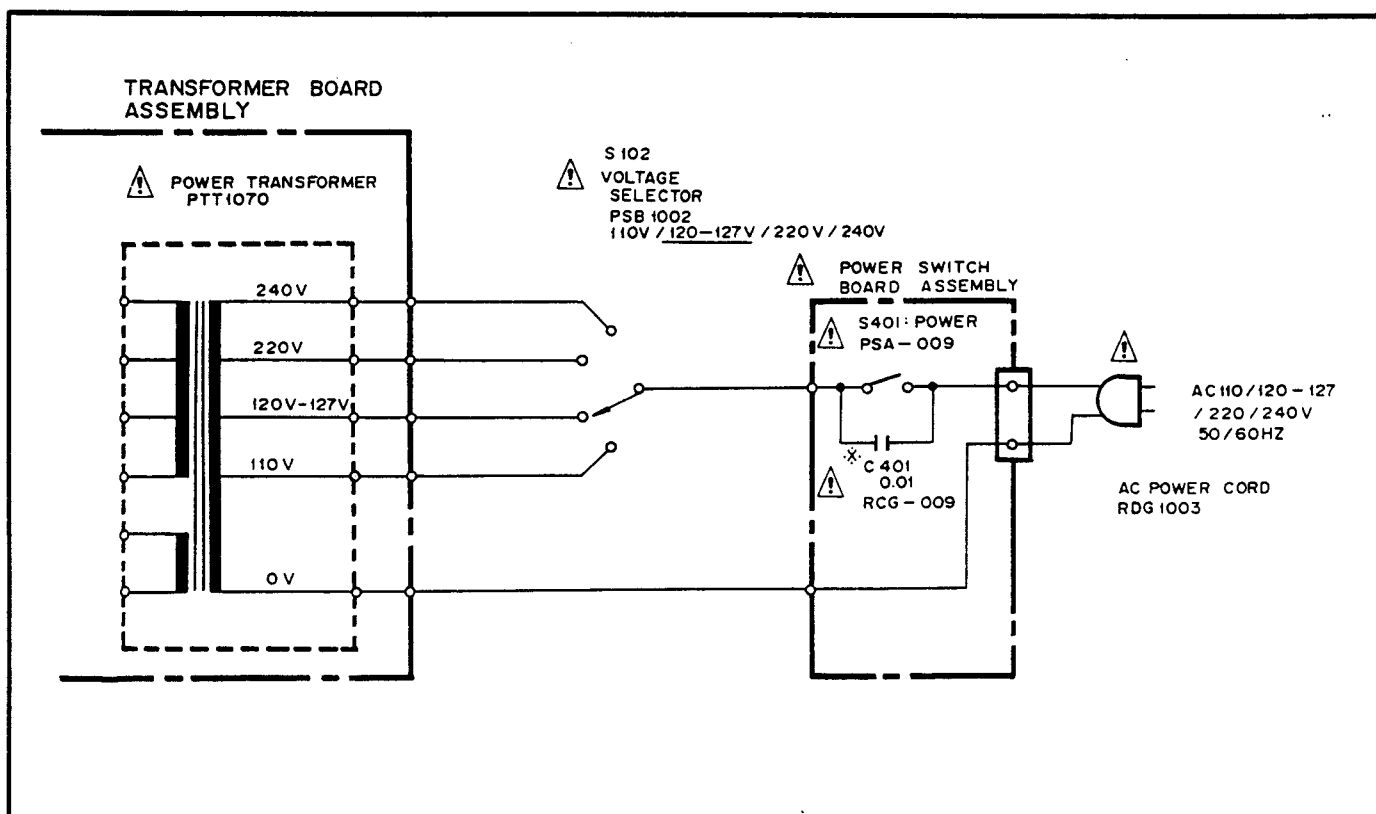
Transformer Board Assembly

The transformer board assembly (for PD-M400/HEM, SD and HP types) are the same as the Transformer board assembly (for PD-M500/KU type) with the exception of the following sections.

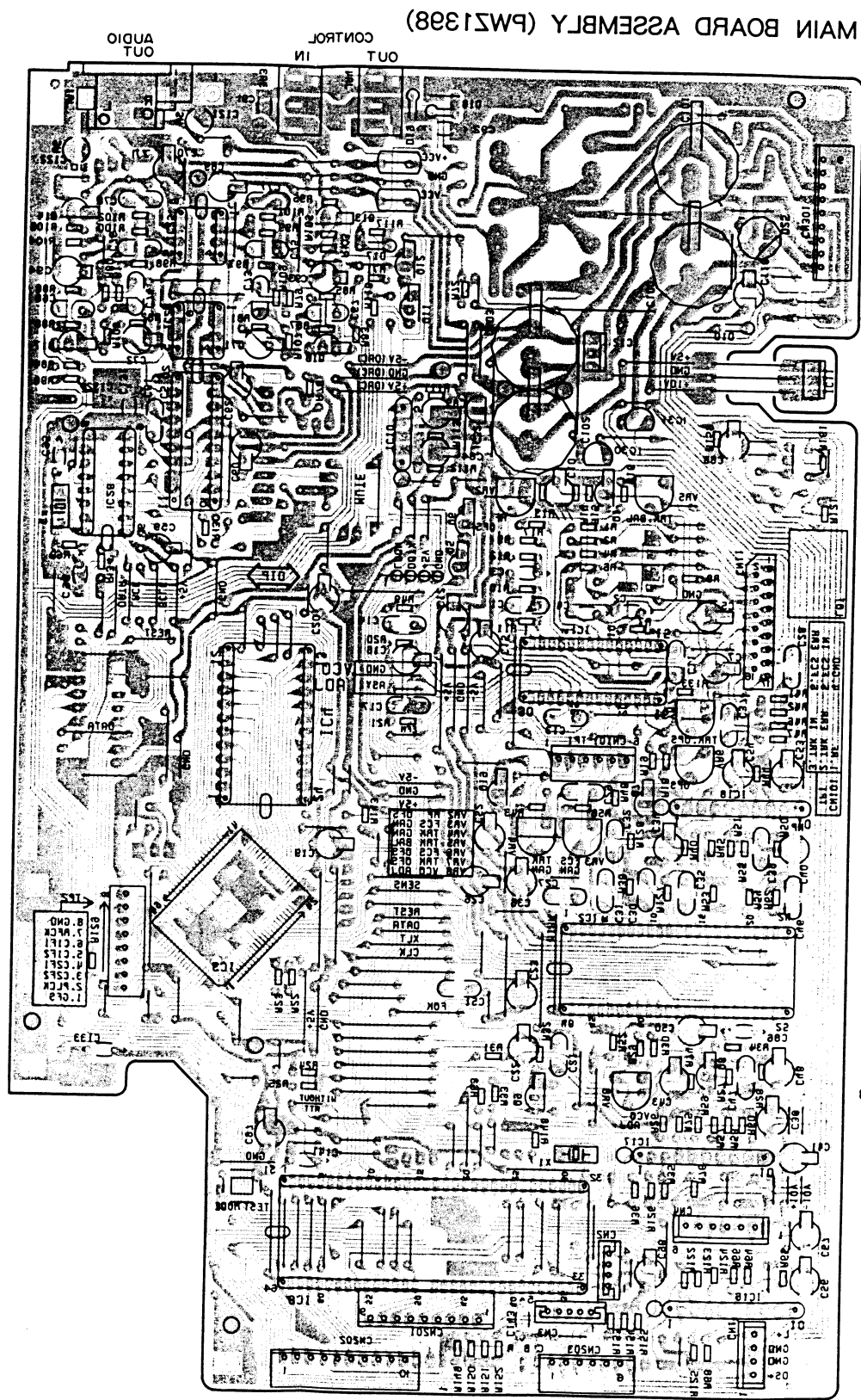
Mark	Symbol & Description	Part No.				Remarks
		PD-M500 /KU type	PD-M400 /HEM type	PD-M400 /SD type	PD-M400 /HP type	
	C308, C309	CKPYF103Z50	• • • • •	• • • • •	• • • • •	

2.2 FOR PD-M400/SD TYPE

Note :The schematic diagram of PD-M400/SD type is the same as the PD-M400/KU and KC types with the exception of the power supply section. Refer to the service manual (ARP1520), PD-M500/KU, KC, PD-M400/KU and KC types.



D



AUDIO
TUC

CONTRACT
TUC

2.3 P.C. BOARDS PATTERN

A

B

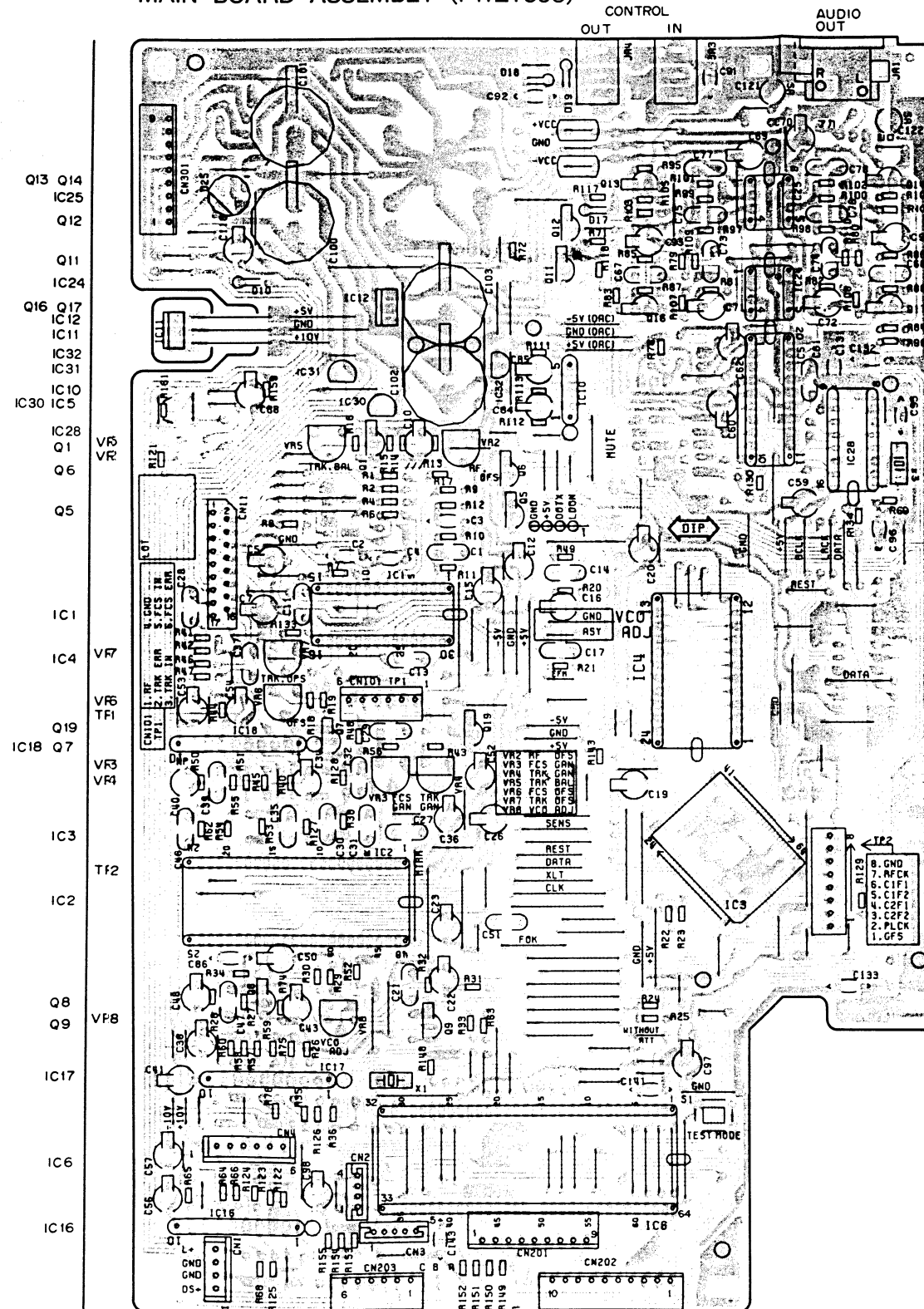
C

D

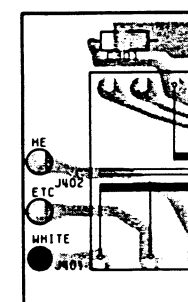
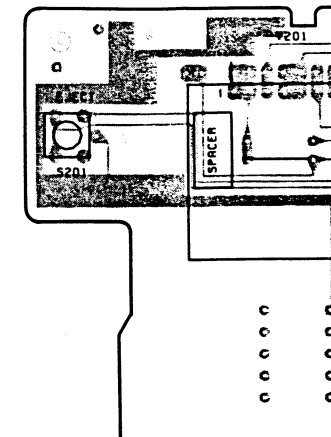
P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
		Transistor			Ceramic capacitor
		FET			Mylar capacitor
		Diode			Styrol capacitor
		Zenner diode			Electrolytic capacitor (Non polarized)
		LED			Electrolytic capacitor (Noiseless)
		Varactor			Electrolytic capacitor (Polarized)
		Tact switch			Power capacitor
		Inductor			Semi-fixed resistor
		Coil			Resistor array
		Transformer			Resistor
		Filter			Resonator

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with shows negative terminal.
4. The diode marked with shows cathode side.
5. The transistor terminal marked with shows emitter.

MAIN BOARD ASSEMBLY (PWZ1398)



FUNCTION BOARD ASS

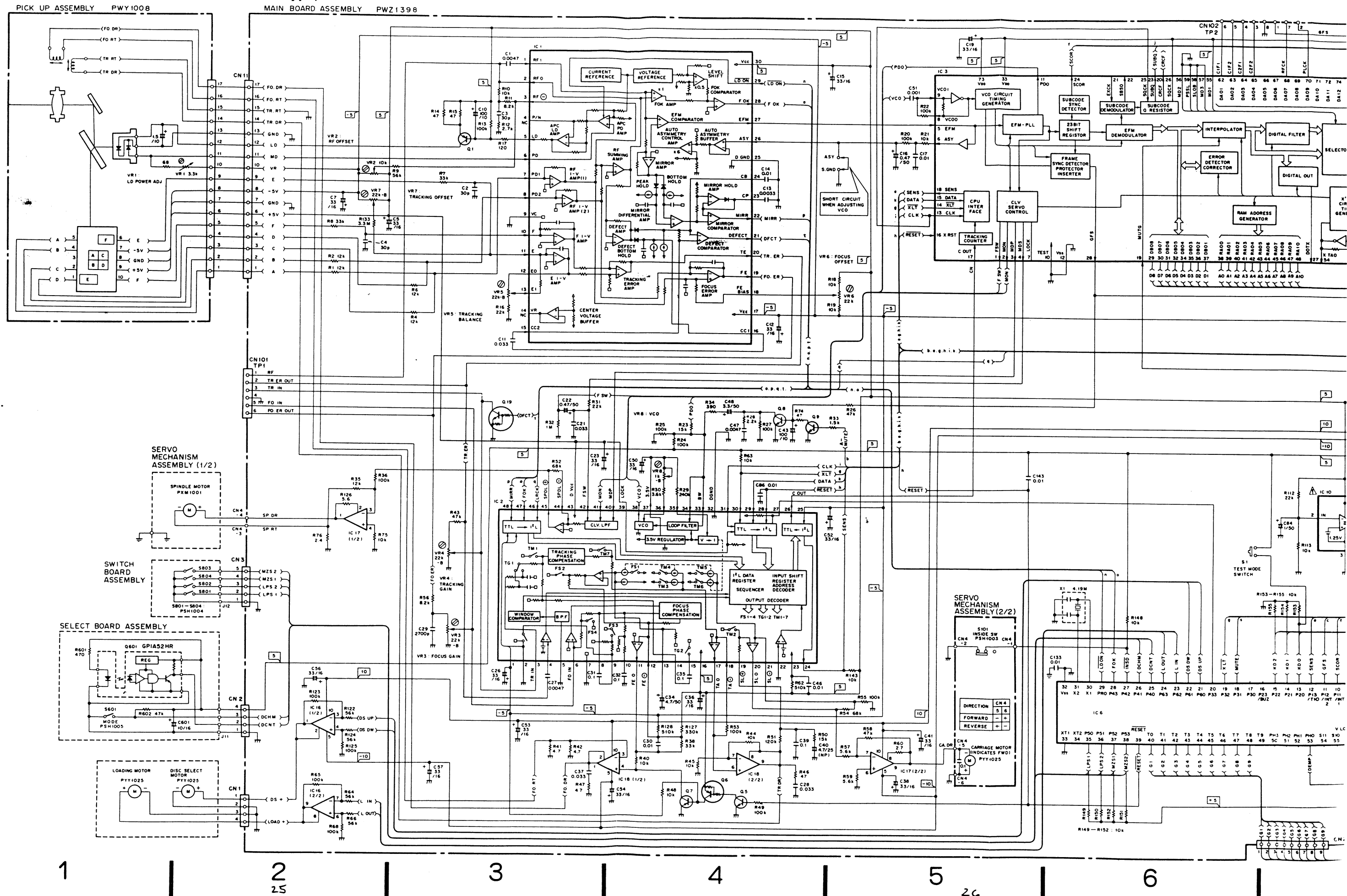


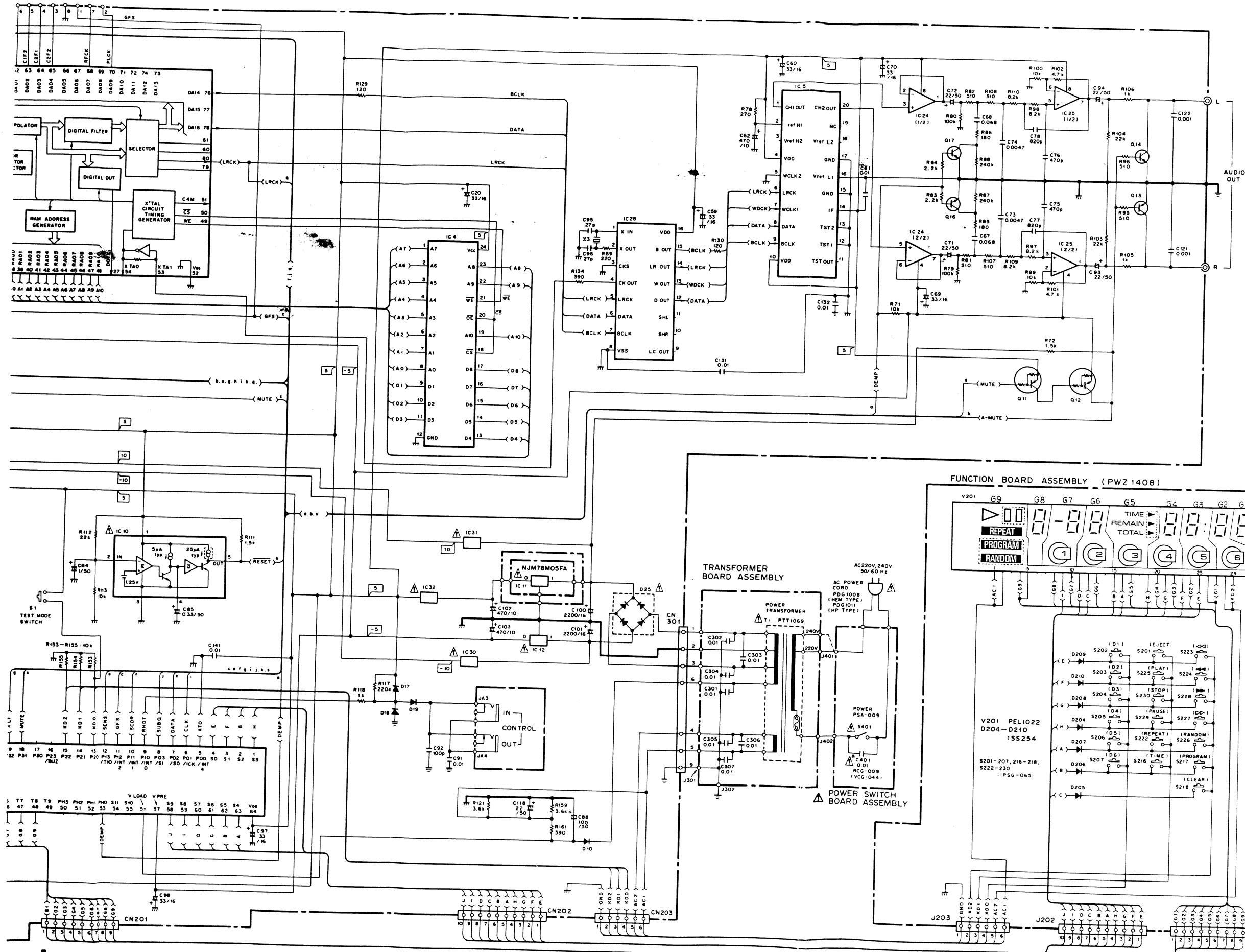
TRANSFORM

△ POWER

Diagram of the Power Switch Board Assembly. The diagram shows a central vertical component labeled S401, with a POWER terminal at the bottom. To the left, a component labeled J401 is connected to the main assembly. Above the main assembly, a component labeled C40 is connected. To the right, there are two circular components labeled J401E and J401F.

2.4 SCHEMATIC DIAGRAM (For HEM type)





- Line Voltage Selection
(For HEM and HP types)
- Line voltage can be changed with following steps.
1. Disconnect the AC Power cord.
 2. Remove the Bonnet case.
 3. Change the connection of the primary lead wires.
(Connect as shown in Schematic Diagram)
 4. Stick the line voltage label on the rear panel.
- | Description | Part No. |
|-------------|----------|
| 220V label | AAX-193 |
| 240V label | AAX-192 |

Note: Main board assembly (PWZ1397) of HP type is the same as the KU type. Refer to the service manual (ARP1520), PD-M500/KU, KC, PD-M400/KU and KC types.

- MAIN BOARD ASSEMBLY
- IC 1 CXA1081S
 - IC 2 CXA1082AS
 - IC 3 CXD1135QZ
 - IC 4 CXK5816PN-12L
(CXK5816PN-15L)
(LH5116-15)
 - IC 5 LC7881-C
 - IC 6 PD4150
 - IC 10 M51957AL
 - IC 11 NJM78M05FA
 - IC 12 NJM79M05FA

- IC 16-IC 18 TAB410K
- IC 24,25 NJM4558DX
- IC 28 PD0034
- IC 30-32 ICP-N10

- Q 1 2SA1399
- Q 5,8,9,16,17 2SC1740S
- Q 6,11 DTA124ES
- Q 7 2SA933S
- Q 12,19 DTC124ES
- Q 13,14 2SD1302

- D10 1SR139-100
- D17-19 ISS254

- D25 WL02-5004-L

- S1 PS0-064
- VR2 VRT86V5103
- VR3-VR7 VRT86V5223
- VR8 VRT56V5102

- X1 V55-014
- X3 P55-012

A

B

C

D